

1 **Amendment to the Claims**

2 **In the Claims:**

3 Please amend Claims 1, 8, 49, and 50 as follows:

4 1. (Currently Amended) A method of constructing a blank library of optically distinct
5 reporter labeled carriers, said method comprising the steps of:

6 (a) providing a plurality of carriers, at least ~~some~~ two of which are identical, each carrier
7 being configured to support a plurality of optically distinct reporters and a plurality of compounds of
8 interest, none of the plurality of carriers as initially provided having any reporters or compounds of
9 interest attached thereto;

10 (b) providing a plurality of reaction vessels, such that at least one reaction vessel is
11 available for each unique member of the blank library to be constructed;

12 (c) providing a plurality of optically distinct reporters, such that at least ~~some~~ two of the
13 plurality of optically distinct reporters are different from each other;

14 (d) in each reaction vessel, apportioning at least one carrier, such that any reaction vessel
15 that includes more than one carrier will include only identical carriers;

16 (e) in each reaction vessel, apportioning at least one optically distinct reporter, such that a
17 unique combination of the at least one carrier and the at least one optically distinct reporter is
18 achieved in each reaction vessel, and such that the optically distinct reporters in each vessel enable
19 each carrier in that vessel to be distinguished from carrier and reporter combinations in other vessels;
20 and

21 (f) attaching said at least one optically distinct reporter to said at least one carrier in each
22 reaction vessel, such that each carrier in the same reaction vessel will have an identical set of
23 optically distinct reporters attached to it, each reaction vessel including a set of optically distinct
24 reporter labeled carriers that is uniquely different from the optically distinct reporter labeled carriers
25 of each other reaction vessel, the plurality of reaction vessels thereby defining a blank library of
26 optically distinct reporter labeled carriers, such that compounds of interest can later be attached to the
27 optically distinct reporter labeled carriers of the blank library.

28 2. (Previously Presented) The method of Claim 1, wherein at least one reaction vessel
29 contains a carrier that is optically distinct from others of said plurality of carriers in other reaction
30 vessels, and wherein no reaction vessel contains a mixture of optically distinct carriers.

1 3. (Previously Cancelled)

2 4. (Previously Cancelled)

3 5. (Previously Cancelled)

4 6. (Previously Cancelled)

5 7. (Previously Cancelled)

6 8. (Currently Amended) A method of constructing a blank library of optically distinct
7 reporter labeled carriers, said method comprising the steps of:

8 (a) providing a plurality of optically distinct carriers, at least ~~some~~ two of which are
9 identical, each carrier being configured to support a plurality of optically distinct reporters and a
10 plurality of compounds of interest, none of the plurality of carriers as initially provided having any
11 reporters or compounds of interest attached thereto;

12 (b) providing a plurality of reaction vessels, such that at least one reaction vessel is
13 available for each unique member of the library to be constructed;

14 (c) providing a plurality of optically distinct reporters, such that at least ~~some~~ two of the
15 plurality of optically distinct reporters are different from each other;

16 (d) in each reaction vessel, apportioning at least one optically distinct carrier and at least
17 one optically distinct reporter, such that:

18 (i) any one of the plurality of reaction vessels that includes more than one
19 optically distinct carrier will include only identical optically distinct carriers; and

20 (ii) a unique combination of the at least one optically distinct carrier and
21 the at least one optically distinct reporter is achieved in each reaction vessel; and

22 (e) attaching said at least one reporter to said at least one carrier in each reaction vessel,
23 such that each optically distinct carrier in the same reaction vessel will have an identical set of
24 optically distinct reporters attached to it, each reaction vessel including a set of optically distinct
25 reporter labeled carriers that is uniquely different from the optically distinct reporter labeled carriers
26 of each other reaction vessel, the plurality of reaction vessels thereby defining a blank library of
27 optically distinct reporter labeled carriers, such that compounds of interest can later be attached to the
28 optically distinct reporter labeled carriers of the blank library.

29 9. (Previously Presented) The method of Claim 8, wherein no reaction vessel contains a
30 mixture of different optically distinct carriers.

1 10. (Previously Presented) The method of Claim 8, wherein said plurality of optically
2 distinct reporters and said plurality of optically distinct carriers are optically distinguishable based on
3 size.

4 11. (Previously Presented) The method of Claim 8, wherein said plurality of optically
5 distinct reporters and said plurality of optically distinct carriers are optically distinguishable based on
6 intensity.

7 12. (Previously Presented) The method of Claim 8, wherein said plurality of optically
8 distinct reporters and said plurality of optically distinct carriers are optically distinguishable based on
9 shape.

10 13. (Previously Cancelled)

11 14. (Previously Cancelled)

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1 34. (Previously Cancelled)

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4 37. (Previously Cancelled)

5 38. (Previously Cancelled)

6 39. (Previously Cancelled)

7 40. (Previously Cancelled)

8 41. (Previously Presented) The method of Claim 2, wherein at least one reaction vessel
9 includes optically distinct carriers that can be optically distinguished from carriers in other reaction
10 vessels based on size.

11 42. (Previously Presented) The method of Claim 2, wherein at least one reaction vessel
12 includes optically distinct carriers that can be optically distinguished from carriers in other reaction
13 vessels based on shape.

14 43. (Previously Presented) The method of Claim 2, wherein at least one reaction vessel
15 includes optically distinct carriers that can be optically distinguished from carriers in other reaction
16 vessels based on color.

17 44. (Previously Presented) The method of Claim 2, wherein at least one reaction vessel
18 includes optically distinct carriers that can be optically distinguished from carriers in other reaction
19 vessels based on an intensity of color.

20 45. (Previously Presented) The method of Claim 8, wherein at least one reaction vessel
21 includes optically distinct carriers that can be optically distinguished from carriers in other reaction
22 vessels based on size.

23 46. (Previously Presented) The method of Claim 8, wherein at least one reaction vessel
24 includes optically distinct carriers that can be optically distinguished from carriers in other reaction
25 vessels based on shape.

26 47. (Previously Presented) The method of Claim 8, wherein at least one reaction vessel
27 includes optically distinct carriers that can be optically distinguished from carriers in other reaction
28 vessels based on color.

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1 48. (Previously Presented) The method of Claim 8, wherein at least one reaction vessel
2 includes optically distinct carriers that can be optically distinguished from carriers in other reaction
3 vessels based on an intensity of color.

4 49. (Currently Amended) A method of constructing a library of optically distinct reporter
5 labeled carriers to which no compounds of interest are yet attached, the method comprising the steps
6 of:

7 (a) providing a plurality of carriers, at least ~~some~~ two of which are identical, each carrier
8 being configured to support a plurality of optically distinct reporters and a plurality of compounds of
9 interest, none of the plurality of carriers as initially provided having any reporters or compounds of
10 interest attached thereto;

11 (b) providing a plurality of reaction vessels, such that at least one reaction vessel is
12 available for each unique member of the library to be constructed;

13 (c) providing a plurality of optically distinct reporters, such that at least ~~some~~ two of the
14 plurality of optically distinct reporters are different from each other;

15 (d) in each reaction vessel, apportioning at least one carrier, such that any reaction vessels
16 that includes more than one carrier will include only identical carriers;

17 (e) in each reaction vessel, apportioning at least one optically distinct reporter, such that a
18 unique combination of the at least one carrier and the at least one optically distinct reporter is
19 achieved in each reaction vessel, and such that the optically distinct reporters in each vessel enable
20 each carrier in that vessel to be distinguished from carrier and reporter combinations in other vessels;
21 and

22 (f) attaching the at least one optically distinct reporter to the at least one carrier in each
23 reaction vessel, such that each carrier in the same reaction vessel will have an identical set of
24 optically distinct reporters attached to it, each reaction vessel including a set of optically distinct
25 reporter labeled carriers that is uniquely different from the optically distinct reporter labeled carriers
26 of each other reaction vessel, the plurality of reaction vessels thereby defining a blank library of
27 optically distinct reporter labeled carriers, each member of the library consisting of a carrier to which
28 at least one optically distinct reporter is attached.

29 50. (Currently Amended) A method of constructing a blank library of optically distinct
30 reporter labeled carriers, the method comprising the steps of:

1 (a) providing a plurality of optically distinct reporters, such that at least ~~some~~ two of the
2 plurality of optically distinct reporters are different from each other;
3 (b) based on the number of different optically distinct reporters provided, determining all
4 possible binary codes that can be produced using the optically distinct reporters provided;
5 (c) providing a plurality of reaction vessels, such that each reaction vessel corresponds to
6 a specific binary code;
7 (d) providing a plurality of carriers, at least ~~some~~ two of which are identical, each carrier
8 being configured to support a plurality of optically distinct reporters and a plurality of compounds of
9 interest, none of the plurality of carriers as initially provided having any reporters or compounds of
10 interest attached thereto;
11 (e) in each reaction vessel, apportioning the optically distinct reporters required to
12 produce the binary code corresponding to the reaction vessel;
13 (f) in each reaction vessel, apportioning at least one carrier, such that any reaction vessel
14 that includes more than one carrier will include only identical carriers; and
15 (g) in each reaction vessel, attaching the optically distinct reporters defining the binary
16 code for the reaction vessel to each carrier in the reaction vessel, such that each carrier in the same
17 reaction vessel will have an identical set of optically distinct reporters attached to it, each reaction
18 vessel including a set of optically distinct reporter labeled carriers that is uniquely different from the
19 optically distinct reporter labeled carriers of each other reaction vessel, the plurality of reaction
20 vessels thereby defining a blank library of optically distinct reporter labeled carriers, such that
21 compounds of interest can be later attached to the optically distinct reporter labeled carriers of the
22 blank library.

23 51. (Previously Presented) The method of Claim 50, wherein the step of apportioning the
24 optically distinct reporters required to produce the binary code corresponding to the reaction vessel
25 comprises the step of adding each different type of optically distinct reporter to the reaction vessel
26 separately, such that if more than two different types of optically distinct reporters are required, each
27 additional type of optically distinct reporter is not added to the reaction vessel until the previously
28 added types of optically distinct reporters have combined to achieve a cluster.

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1 52. (Previously Presented) The method of Claim 50, wherein the step of providing a plurality
2 of optically distinct reporters comprises the step of providing optically distinct reporters whose sizes
3 are smaller than a spatial resolution limit of an imaging system that will be used to analyze the
4 library.
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